

CLAIMS

What is claimed is:

- 5 1. An apparatus for generating a coherent laser beam
from an emission of a series of diode lasers, comprising at
least one row of source diodes and a system for transforming
the primary light emission emitted by the source diodes into
secondary coherent light emission, wherein the system for
10 transforming the primary emission into secondary coherent
light emission includes a hologram, which comprises an image
of an interference pattern of the primary light emission and
the secondary coherent light emission, so that when
illuminating the hologram with the primary light emission,
15 the hologram reflects the secondary coherent light emission,
and wherein a mirror is provided in the path of the secondary
coherent light emission which reflects at least some of the
secondary coherent light emission via the hologram to the
diode lasers.

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2. A method for generating a coherent laser beam from
an emission of a series of diode lasers, comprising the
generation of primary light emission with the aid of the
diode lasers after which the primary light emission is
5 transformed into secondary coherent light emission by using
the primary light emission to illuminate a hologram
containing an image of an interference pattern of the primary
light emission and the secondary coherent light emission and
by reflecting at least some of the secondary coherent light
10 emission to the hologram for the generation of tertiary light
emission, which beams contrary to the primary light emission
but has a same phase relation, and wherein the tertiary light
emission is used as provider of a feedback signal for the
diode lasers.

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3. A method for making a hologram that is suitable to be used in a method and apparatus generating a coherent laser beam from an emission of a series of diode lasers, comprising the generation of primary light emission with the aid of the diode lasers, after which the primary light emission is directed at an at least partly permeable recording medium for recording an interference pattern, after which the primary light emission that has passed through the recording medium is concentrated and directed at a photoreflective crystal in a self-pumped configuration, or at a crystal that is fed by a pump beam such that the photoreflective crystal returns a light emission that is phase-conjugated with the primary light emission to the diode array in order to provide the diode lasers with a feedback signal, while a reference signal is directed at the recording medium so that together with the primary light emission, it can form the interference pattern.

4. A method according to claim 3, wherein the primary light emission that has passed through the recording medium is concentrated by means of a lens.